



Acquisition Strategy Panel

for

Joint Tactical Radio System Cluster 4 Pre-SDD Contracts

Pending Approval



Purpose

- **Describe overall program strategy for the Joint Tactical Radio System Cluster 4**
- **Request approval of Pre-SDD acquisition strategy**

Pending Approval



Overview



- **JTRS Goals and Requirements (separately provided)**
- **Cluster 4 Unique Requirements**
- **Cluster 4 Program Approach**
- **Pre-SDD Acquisition Strategy**
- **Business Strategy**
- **Contract Approach**
- **Source Selection Plan**
- **Special Topics**
- **Recommendations**



Cluster 4 Unique Requirements

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Service Platforms Need RF Comms Capability



CAF

AL-1A
B-1B
B-52H
EC-130H/E
F-117A
F-16/25, 30-32

MAF

C-130E

C-130J

C-17A
KC-10A

KC-135
C-130H
C-5
HC-130 P-N

AF C2ISR

E-8C JSTARS
MC2A
U-2S
RC-135S/U/V/W
E-3B/C
E-4B
Global Hawk
Predator

SOF

AC-130H/U
MC-130E/H/P
CV-22

Navy

E-2C
MMA
MH-60R/S
F-18E/F
AV-8B
E-6A
KC-130T
E-P3
P-3C
EA-6B

USMC

F-18E/F
AH-1Z
CH-53E
UH-1Y
MV-22

ARMY

ACS
Shadow 200 UAV
Extended Range
Multi-Purpose UAV

USCG

TBD
(C-130s / Helos)

Pending Approval



Initial AFC2ISRC Migration Plan Requirements*



Platform	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	TC	TOTAL A/C	TOTAL SETS
B-52H		44	42	44	22					76	152
AC-130U		4	12	16	16	4				13	52
AC-130H			12	12	8					8	32
MC-130E		8	16	16	16					14	56
MC-130H		4	16	24	32	12				22	88
MC-130P		20	20	28	24	16				27	108
B-1B	12	12	12	12	12					60	60
F-117A				13	13	13	13	2		54	54
EC-130H		12	24	24						15	60
HC-130 P-N		14	12	12	12	12	12	10		42	84
U-2S		6	6	6	6	6				30	30
C-17		72	72	72	72	72				180	360
F-16 Blk 25,30/32				32	75	75	75	75	75	547	547
E-8C		4	4	4	4	1				17	17

Requested Production Deliveries

USAF

USN

USMC

USA

*EDMs normally required 2 years prior to production deliveries; E-2C & MC2A desired in FY06

Pending Approval



Initial AFC2ISRC Migration Plan Requirements*



Platform	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	TC	TOTAL A/C	TOTAL SETS
E-3B/C		3	6	6	6	6	6			33	33
EC-130E		9	9	6						8	24
C-130E/H		45	60	60	60	60	33			318	318
KC-135		75	75	75	75	75	75	75	20	545	545
RC-135V-W		12	12	12	15					17	51
CV-22			30	30	30	30	30			50	150
RC-135S		3	3	3						3	9
RC-135U		3		3						2	6
AL1A		1								1	1
MC2A				2	2	1				5	20
KC-10A		20	20	20	20	20	18			59	118
C-5		42	42	42	42	42	42			126	252
KC-767A		48	48	52	52					100	200

Requested Production Deliveries

USAF

USN

USMC

USA

*EDMs normally required 2 years prior to production delivers; E-2C & MC2A desired in FY06

Pending Approval



Initial AFC2ISRC and Joint Migration Plan Requirements Cont.*



Platform	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	TC	TOTAL A/C	TOTAL SETS
C-130J		16	56	56	56	44	24	24	24	150	300
E-2C											
AV-8B											
MMA											
MH-60R/S											
F/A-18E/F											
E-6A											
KC-130T											
E-P3											
P-3C											
EA-6B											
AH-1Z											
CH-53E											

Requested Production Deliveries

USAF

USN

USMC

USA

*EDMs normally required 2 years prior to production delivers; E-2C & MC2A desired in FY06

Pending Approval



Initial AFC2ISRC and Joint Migration Plan Requirements Cont.*



Platform	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	TC	TOTAL A/C	TOTAL SETS
UH-1Y											
MV-22											
F/A-18C/D/E/F											
ER/MP UAV											
SHADOW 200											
ACS											
TOTAL SETS**	12	463	597	670	658	477	316	176	119		3643

Requested Production Deliveries

USAF

USN

USMC

USA

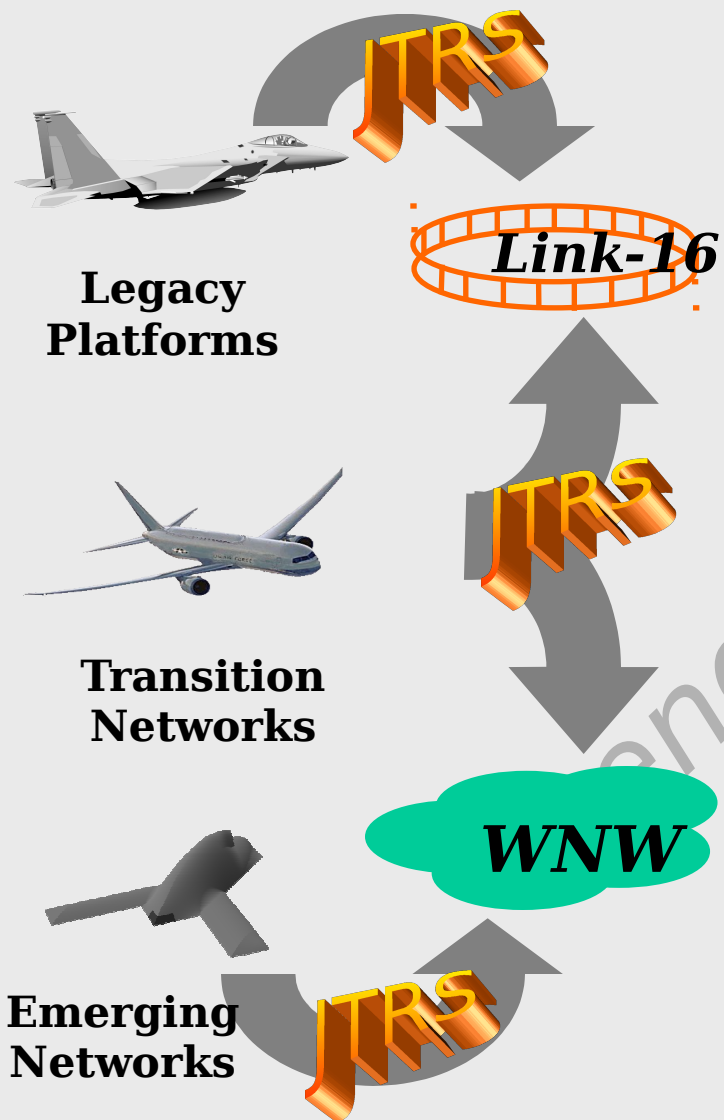
*EDMs normally required 2 years prior to production delivers; E-2C & MC2A desired in FY06

** Initial AFC2ISRC Requirements for Air Force Platforms Only

Pending Approval



Spectrum of Airborne Radio Needs



- **Replacement capability**

- Meeting the replacement needs of the airborne forces
- *Backwards Compatible*: Accommodates platform constraints

- **Transition capability**

- *Backwards Compatible*: Accommodates platform constraints
- *Forward Compatible*: Enables migration to network

- **Network capability**

- Creating a network-centric infrastructure for the airborne forces

Pending Approval



Program Acquisition Approach

Pending Approval



Cluster 4 Program Tenets



- **Warfighter-focused:** provide needed operational capability at earliest opportunity; use evolutionary acquisition approach where practical
- **Forward-looking:** support migration of airborne platform capabilities; maximize future capabilities to support network-centric operations (return on JTRS investment)
- **Cost effective:** leverage prior investment by accommodating platform constraints where

***JTRS Communications Capability
Supports Network-Centric Operations***



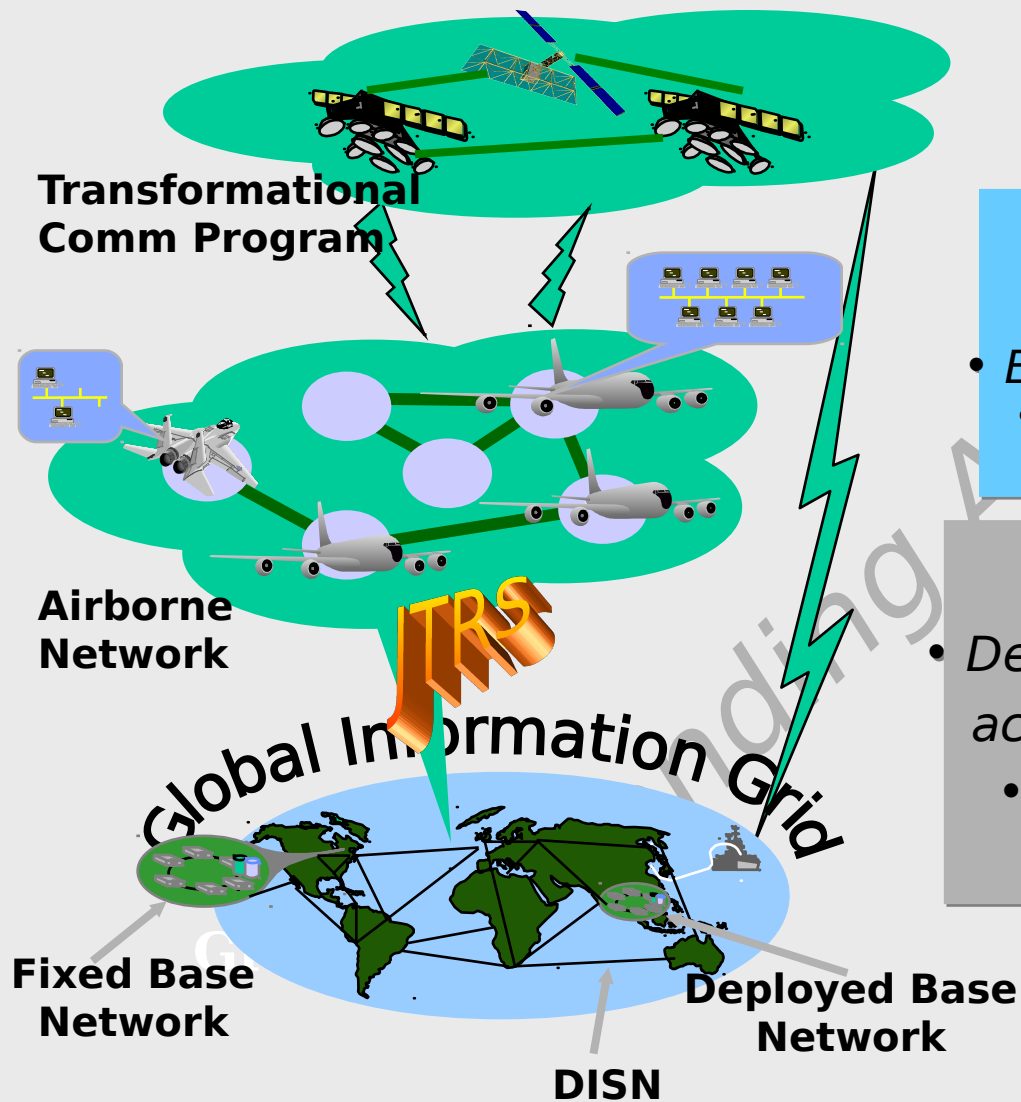
Strategy Constraints & Drivers



- **Schedule pressure:** warfighters need capability ASAP
 - Strategy must address schedule acceleration without undue risk
 - Satisfy earliest platforms without sacrifice of full capability later
- **65+ platform types:** evaluation of variety of platform constraints is *critical path item to SDD*. Results drive design for family of Cluster 4 radios.
- **Total Ownership Cost:** focus must be on minimizing total cost of providing an operational capability; A-kit, B-kit, and supportability
 - Platform integration costs far exceed radio procurement costs
- **Network interfaces affect Airborne JTRS design.** Platforms' capability evolution must be guided by common architecture and performance standards to create operationally viable airborne network
- **Milestone Review Process (DAB) - Service and OSD-level concurrence with SDD strategy prior to implementation**
 - Requires detailed program requirements, analysis of alternatives, cost and affordability assessment and business strategy planning
 - Gates SDD award by minimum of 7 months



JTRS Cluster 4 Approach



Vision

- Airborne network
- Expansion of Global Information Grid
 - Flexible family of cost effective airborne radios

Approach

- Define network-centric capabilities to achieve desired operational effects
 - Leverage JTRS to achieve vision
 - maximizes Services' ROI

Pending Approval



Initial Risk Considerations



- **AE facilitated initial risk assessment session 8 Oct 02**
- **Risks also identified in 12 Nov 02 responses to our Request for Information, released late Oct 02.**
 - Risk information and mitigation ideas from these RFI responses are currently under review
- **Planning a second JTRS Cluster 4 risk assessment round on 30 Jan 03, involving service users, and other stakeholders like NSA and other certifiers/testers**
 - Results will help in evaluating Phase 1 proposals from Industry in Feb/Mar time frame
 - Working with Cluster 1 team to review their risk mitigation planning



Initial Risk Assessment

Key Risk Areas



Description	Prob. Of Occur.	Strategy for Mitigation
<u>May not meet earliest user platform need dates:</u> some platforms requesting production units as early as FY 07	Med-High	Work from both ends: Review ORD blocking w/users based on pre-SDD inputs. Conduct trade studies to consider designs for early deliveries. Validate if user schedules funded and planned for depot work (block updagrade scheduled?) and if early prototypes and EDMs can help until production hardware is available.
<u>Waveform Delivery Risk (schedule or performance):</u> If waveform and crypto algorithm developments have design problems or test issues and require retest, may impact Cluster 4 delivery schedule	High	Work with Cluster I SPO and J PO's Waveform Office to define most likely schedule, and assess slack between waveform/crypto software deliveries and Cluster 4 need dates. Develop waveform schedule to port lower technical risk waveforms first.
<u>NSA Cert. Process/Schedule Uncertainty:</u> If we do not understand NSA certification requirements for J TRS COMSEC, process may take longer than scheduled.	High	Cluster 1 and 4 share this risk--will use experience from Cluster 1. Re-evaluate Airborne J TRS security req'ts, certification steps, and schedule risk during Pre-SDD.



Initial Risk Assessment (cont.)



Description	Prob. Of Occur.	Strategy for Mitigation
<u>Platform Security Architecture:</u> May have cost, schedule and/or performance impacts on J TRS System	High	Work jointly with platform developers to clearly define security interfaces. Develop a blocked capability of platform and network security requirements needed to meet major program test events. Request early NSA involvement to influence design options based on Cluster 1 lessons learned.
<u>Platform Integration Variety/Complexity:</u> If a common set of Airborne J TRS modules cannot fit all the required platforms, platform integration costs (design and recurring cost) could significantly increase. Associated with this risk category is platform-related risk of co-site interference	Medium	Partnering with platform program offices to define platform-unique constraints and ensure radio developer understands constraints. Determine if family of radio modules can fit into multiple platforms. Consider possibility of J TRS providing co-site mitigation solution if common to multiple platforms.
<u>Safety of Flight Reqmts Uncertainty:</u> High reliability/saftey of flight-related Global Air Traffic Management waveforms and Combat ID (Mode 4, 5, and civil Mode S) may impact Airborne J TRS design and certification.	High	Working with GATM, Combat ID users, and development offices to clarify performance and certification requirements. Will conduct CAIV and system engineering analyses to determine if performance requirements would be a "corner case" or significant driver for Airborne J TRS radios.



Initial Risk Assessment (cont.)



Description	Prob. Of Occur.	Strategy for Mitigation
<u>Inadequate planning for migration to network-centric capabilities</u> : If platform requirements and CONOPS do not consider the impact of networking capabilities and wideband waveforms, then network centric communications capability would not be realized for the warfighter.	Medium	Working w/ users and platform managers (SPOs) to understand evolutionary plan for A-kit development in parallel with Airborne J TRS development. User migration plans should also reflect the phase in of capabilities expected from J TRS and WNW. Incrementally implement J TRS capability in airborne platforms
<u>Operational Test Risk</u> : test issues may arise due to factors other than J TR set performance such as platform integration design, etc.	High	Establish early and open relationship with platform developers across Services. Clearly define J TRS interfaces w/platform and platform network.
<u>Cost estimating risk</u>	Med-High	Pre-SDD effort directly feeds into CARD development and POE efforts. Insights into number of Cluster 4 variants from pre-SDD effort will make Cluster 4 cost model much higher fidelity.



Programs With Potential Application to Cluster 4



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Acquisition Strategy Options



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Cluster 4 Two-Phase Development Strategy

SDD

Design family of JTRS Cluster 4 radios to cost-effectively meet users needs, incorporating features to support network-centric operations

Phase 2

Pre-SDD

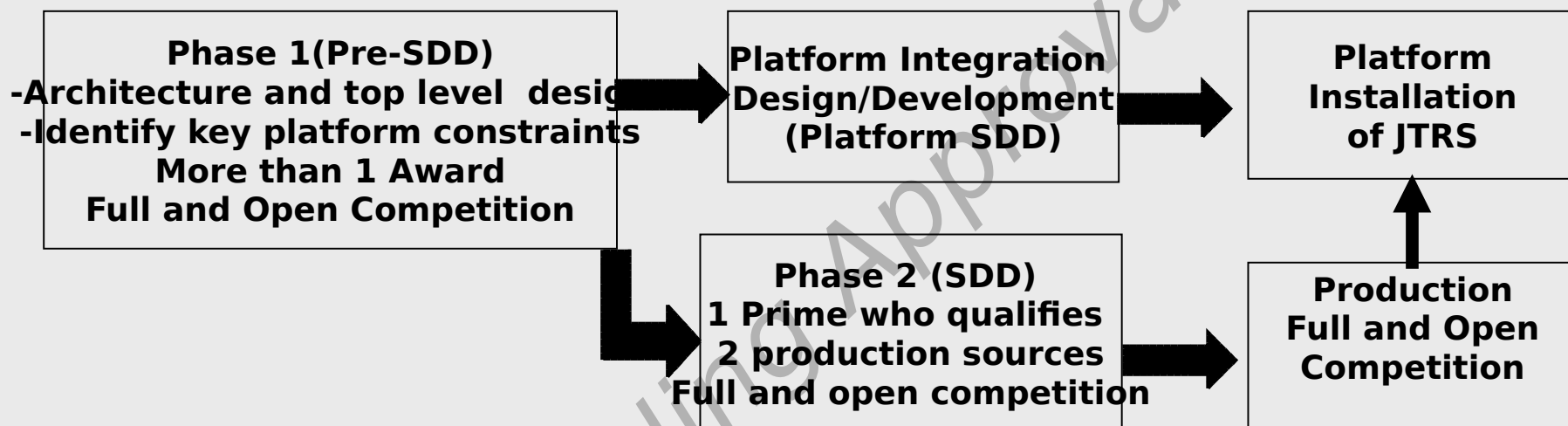
- Define incremental approaches to assure early operational capability to meet users scheduled demands
- Evaluate modularity/family of JTRS Cluster 4 variants
- Evaluate platform constraints driving integration cost
- Define platform network performance and standards
- Support DAB prep including Analysis of Alternatives, CARD, etc
- Understand attributes of RF network, as an extension of the global grid, that provides information exchange capability for future missions.

Phase 1

- *Radio system design must be responsive to platform constraints*
- *Evolutionary, to address early user needs and migration toward network-centricity*
- *Understanding networking capability is foundation for defining radio requirements*

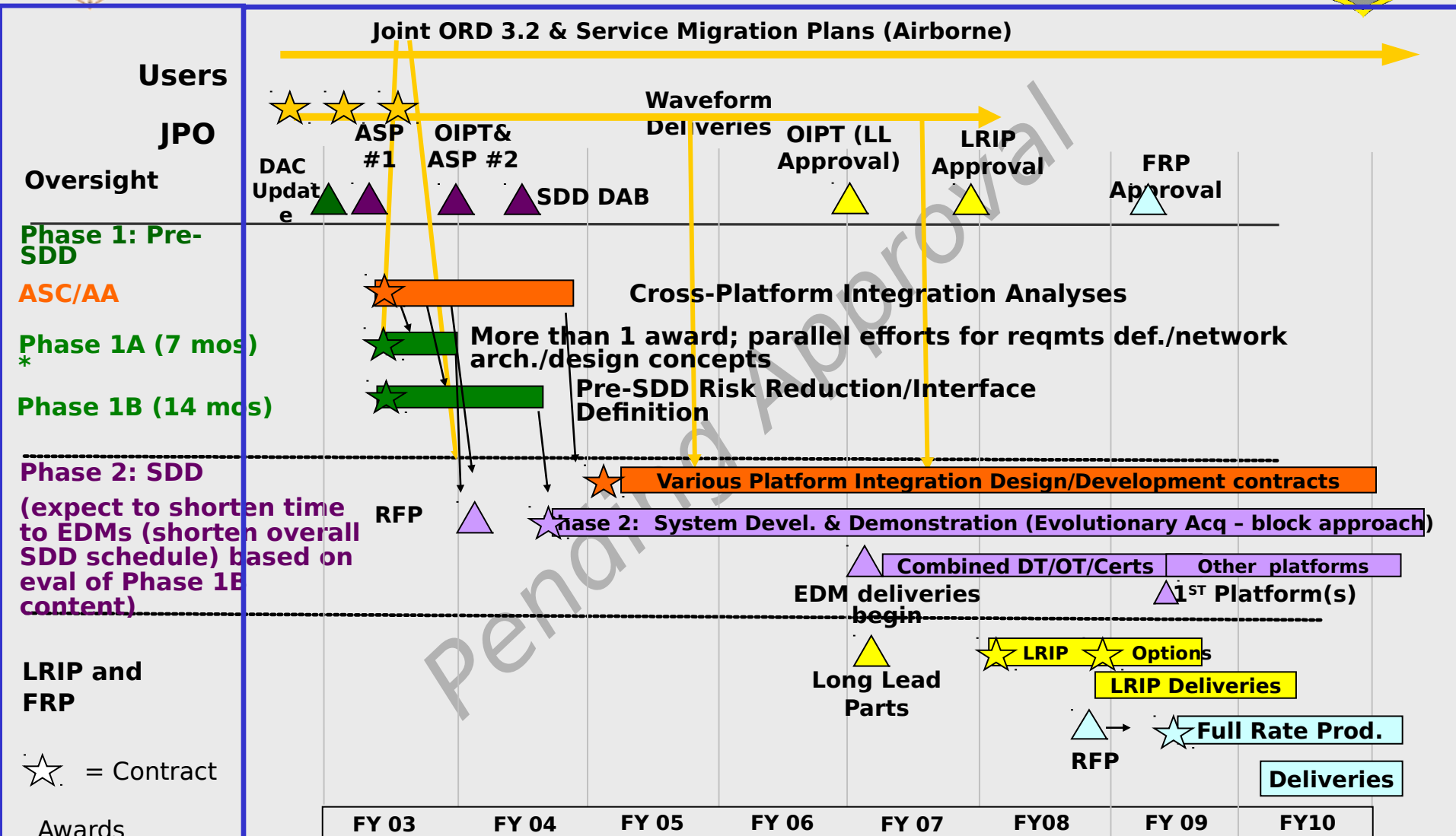


Cluster 4 Program Phasing





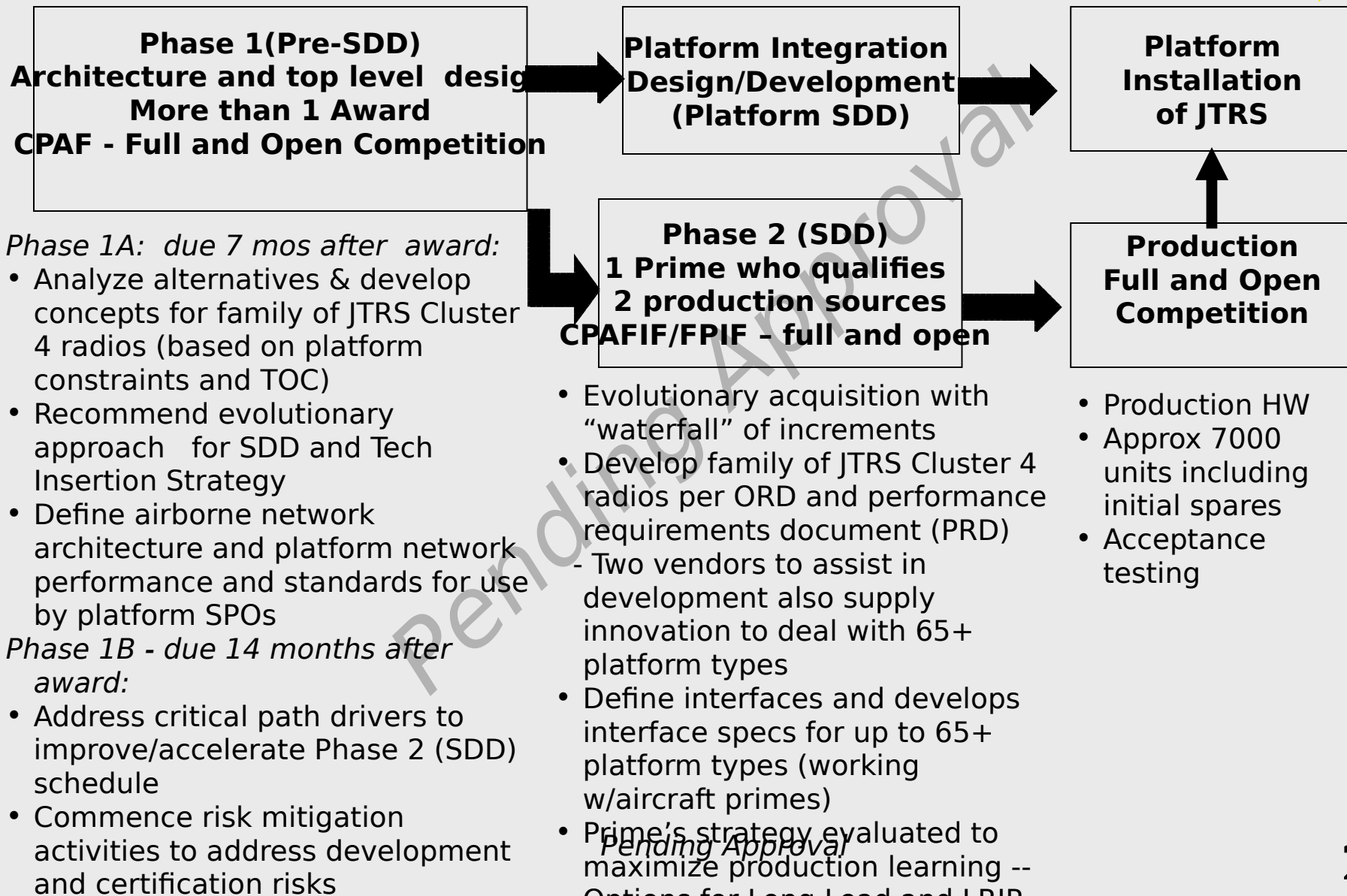
Cluster 4 Program Schedule



* Supported by Lincoln Lab's initial definition of platform network concept/ requirements Pending Approval



Cluster 4 Program Phasing





Cluster 4 Development Partnerships



- **ASC/AA's Aging Aircraft System Program Office**
 - Leading cross platform analysis - developing capabilities roadmaps
 - Formed cross-platform system engineering CADRE; joint group also includes NAVAIR and Cluster 4 SPO reps
 - MOA in development - will address allocation of OSS&E responsibilities
- **Lincoln Laboratory activity**
 - Platform Network Definition
 - Program office rep on joint WNW IPT; performing WNW capabilities assessment
- **With C2ISRC, co-hosting 29-30 Jan users meeting**
 - Review acquisition strategy and timelines
 - Confirm platform requirements baseline for Cluster 4 pre-SDD
 - AF, Navy, USMC, Army, USCG



Joint Tactical Radio System Funding Status



DESCRIPTION	FYDP								
	FY01/P	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<u>TOTAL T/C</u>									
FY 04 BES (with signed PBD 290 included) (AS OF 20 DEC 02):									
PE 64280F 3600	0.0	0.0	17.4	49.9	52.8	113.7	79.7	49.2	
33.8 396.5 TBD									
PE 27423F 3600	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0 1.5 TBD									
PE 27423F 3010	0.0	0.0	0.0	0.0	0.0	108.0	372.0	343.2	
371.2 1194.4 TBD									
TOTAL APPROVED	0.0	1.5	17.4	49.9	52.8	221.7	451.7	392.4	
405.0 1592.4 TBD									



Source Documents



- **Mission Needs Statement for the Joint Tactical Radio, 21 Aug 97**
- **Joint Operational Requirements Document Ver 2.3, signed 24 Apr 02; Ver 3.2 in O-7 level coordination**
- **OSD(C3I) Memo establishing JTRS waiver process, 28 Aug 98**
- **Acquisition Decision Memoranda**
 - **DUSD(AT&L) approved JTRS cluster approach/reconfirmed waiver process, 12 Feb 01**
 - **USD(AT&L) re-emphasized waiver process, directed Services to submit migration plans, 2 Aug 01**
 - **USD(AT&L) approved Cluster 1 MS B; designated AF lead for Cluster 4, 24 Jun 02**
- **SAF/AQ Letter PMD, tasked all AF platforms to plan and budget for JTRS, 16 Jul 02**
- **Advanced Communications PMD from SAF/AQI included annex for JTRS Cluster 4, signed 14 Oct 02**



Decision Authority



- **ACAT 1D (not formally designated)**
- **DAC: Lt Gen Looney**
- **SSA and ASP Chair: SAF/AQ**
- **ASR Approval (in SAMP for AF ACAT 1 programs) - USD(AT&L)**
- **Total AF Cluster 4 Program Funding: \$1.6B**
- **Total Estimated Value of Pre-SDD: \$29M**

Pending Approval



Phase 1 (Pre-SDD) Acquisition Strategy

Pending Approval



Phase 1 Enables Successful Phase 2 (SDD)



Phase 1 Government Activities:

- **Collaborating with users and platform integrators** to define airborne requirements
- ASC/AA leading functional capabilities analysis - will **develop platform capabilities roadmaps** for most Air Force platforms
- Lincoln Laboratory tasked to define airborne network attributes to help validate WNW requirements for airborne domain; **draft platform network concept**

Phase 1 Contracts:

- **More than 1 award**; parallel efforts from which government chooses best aspects of initial concepts to define SDD system level requirements
- Phase 1A **feeds SDD requirements planning and DAB prep** (due 7 mos after award):
- Phase 1B concurrent with Phase 1A; **focused on schedule acceleration** (due 14 months after award)

Phase 1 requirements definition drives design of family of JTRS Cluster 4 radios



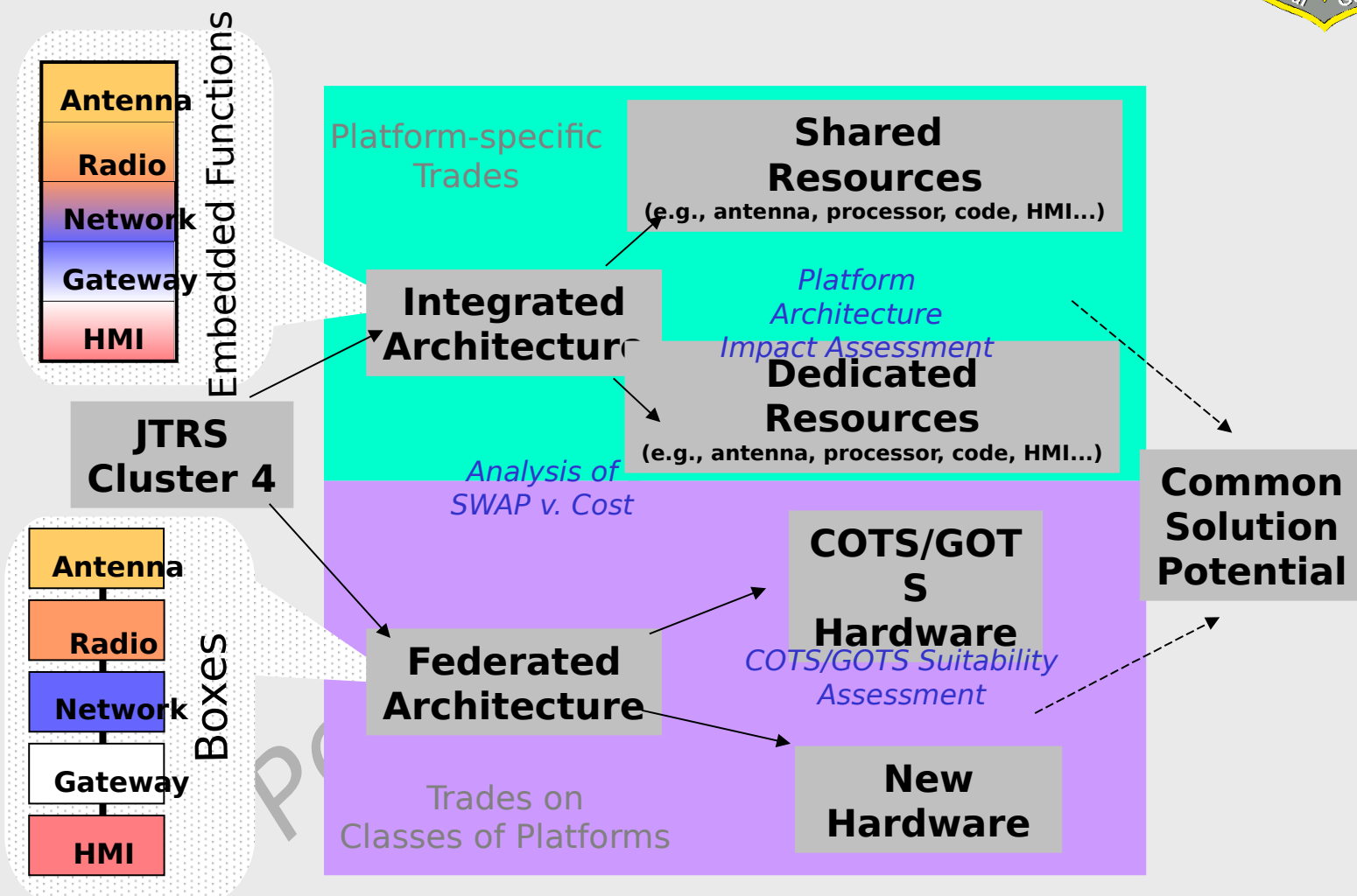
Phase 1 Deliverables

- Phase 1A results support SDD RFP and DAB documentation
 - Analysis of constraints (key platforms) defines drivers for family of Cluster 4 radios
 - Evolutionary: address users' demand for **initial JTRS operational capability and develop overall Tech Insertion Strategy**
 - **Total Ownership Cost** elements identified (assumptions and approach)
 - **Platform and network installation constraints**
 - **System performance and functional interface requirements**
 - Review of alternative architectures **feeds user-led Analysis of Alternatives** needed for Milestone B DAB
 - Airborne network architecture/standards and **on-board network performance requirements** identified; affects allocation of performance requirements between radio, network, and platform OFP
 - **Allocation of responsibilities** between Cluster 4 prime and platform system managers (needed to clarify scope of JTRS SDD RFP)
- Phase 1B results will **accelerate SDD deliveries**
 - Network and Platform ICDs
 - Draft functional performance allocation
 - Results of **risk reduction** efforts and tasks to accelerate schedule



Sample Analysis of Alternatives

Physical Architectures Alternatives



Phase 1A Results feed DAB preparation activities, including AoA by users



Analysis of Alternatives

Notional Evaluation Criteria*

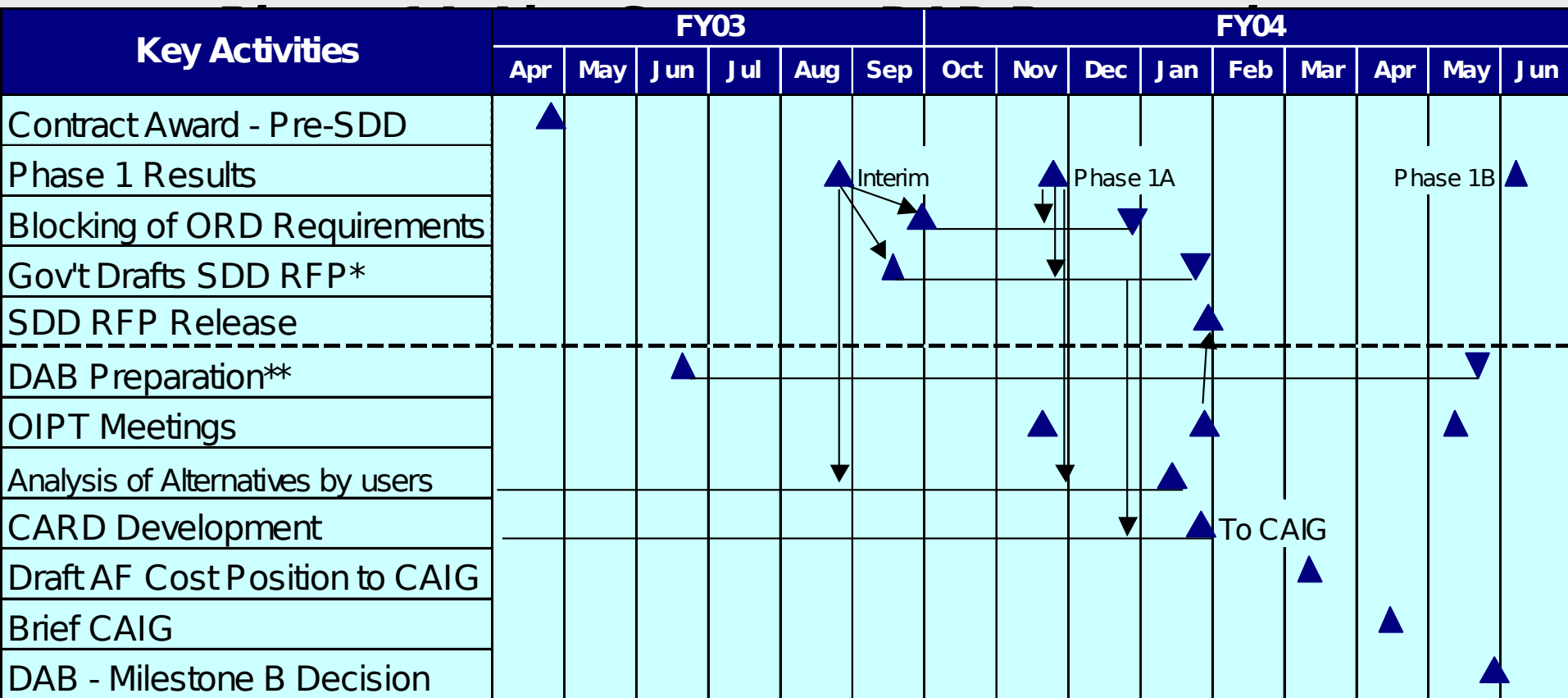


- **Operational Performance**
 - Ability to meet Joint JTRS ORD requirements and platform-unique requirements for airborne domain
 - Potential to support requirements evolution (long run capability and affordability) e.g. airborne networking, network-centric operations
- **Ability to meet users' schedule demands**
 - Can user maintain operational capability during transition to JTRS?
 - Does "fastest" alternative adequately address other criteria?
- **Total Ownership Cost**
 - Affordability at the highest view of cost (radio + platform integration + sustainment (including manpower costs))
 - Approach to maximize and capture production learning
- **Risk Mitigation**
 - Does alternative adequately address risk areas (e.g., variety of platform interfaces, test and certification planning, COMSEC design/NSA cert.)
 - Is offeror's System Engineering process mature?
 - Is technology maturity level acceptable?

Will also be basis of source selection criteria for SDD Phase
Pending Approval



Pre-SDD Requirements Definition on Critical Path to SDD



* Performance Requirements Document (PRD) development feeds CARD and AFCP

** Documentation includes SAMP, APB, C4ISP, Manpower Estimate, TEMP, etc.

Pending Approval



Funding for Phase 1 (Pre-SDD) (TY\$M)

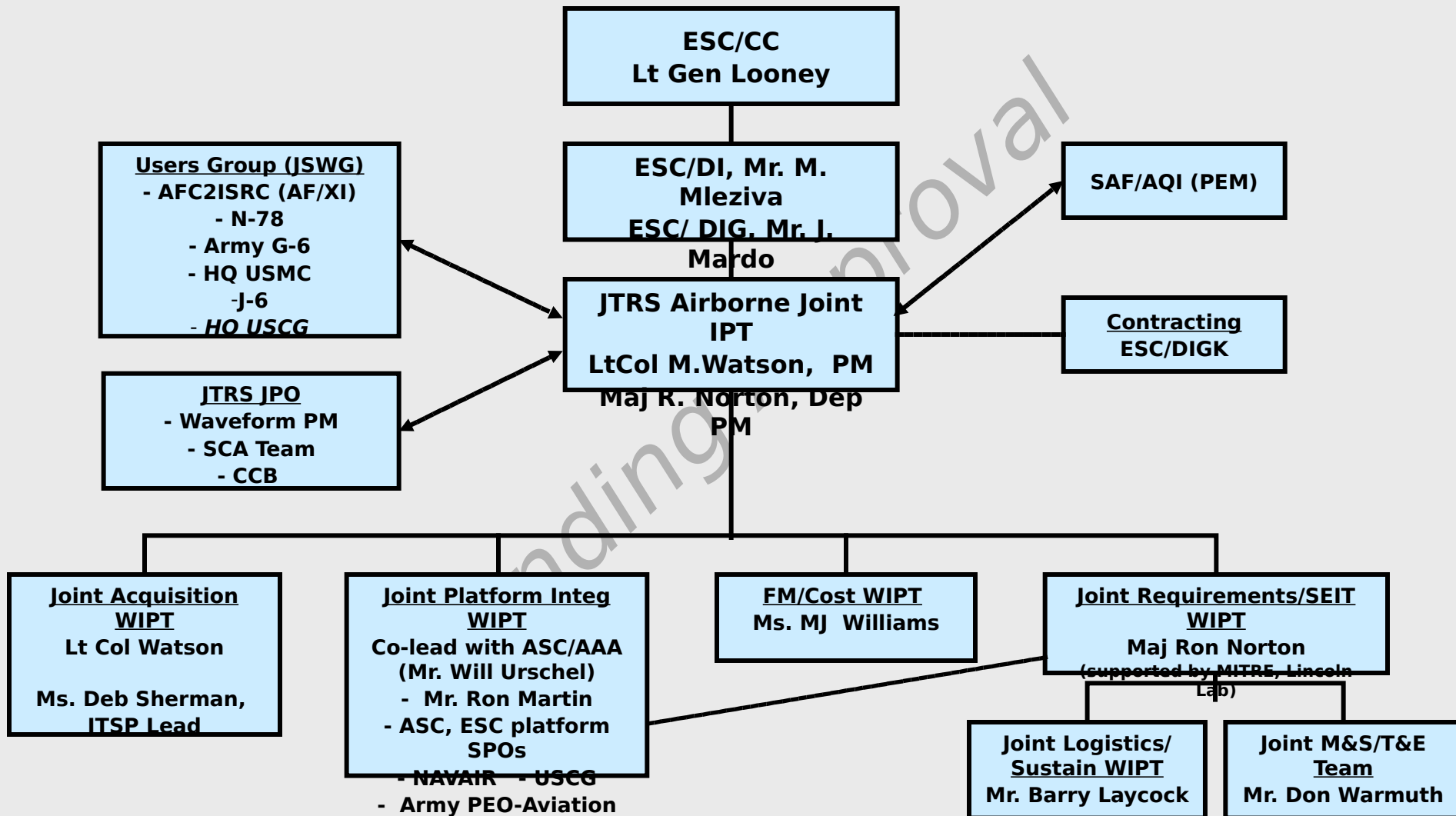


<u>Purpose</u>	<u>FY03</u>	<u>FY 04</u>	<u>TOTAL</u>
Phase 1	9.0	20.0	29.0
Lincoln Lab	1.6	1.7	3.3
ASC/AA	1.0	TBD	1.0+

Pending Approval



Integrated Product Team Structure



Pending Approval



Business Strategy Contract Approach Source Selection Plan

Pending Approval



Business Strategy Phase 1



Full and open competition with more than 1 award

- **Alternative/competitive architectures and approaches**
 - Schedule acceleration
 - Identify platform constraints
 - Concepts for the family of radios
 - Network architectures and standards
 - Minimize TOC
- **Phase 1A results reviewed by government in developing RFP for SDD**
 - deliverables to be posted on HERBB to ensure access to information for other firms interested in SDD
- **Phase 1B performed concurrent with Phase 1A and extends 7 months longer**
 - Maximizes ability to accelerate SDD schedule for earlier deliveries to users
 - Risk reduction development
 - SDD critical path drivers



Business Strategy Phase 2 and Beyond



- **Phase 2: Full and open competition for SDD using single prime integrator with two suppliers for JTR sets (LRIP)**
 - **Focus on operational performance, schedule, and TOC**
 - **Prime Integrator responsible for JTR qualification/certification and technical support to platform integrators**
 - **Hardware exclusion clause for JTR set - qualifies two JTR Sources**
 - **Prime Integrator can develop and supply system/platform ancillaries**
 - **Two JTR sources provide sufficient design breadth across 65+ platform types - reduces development risk**
 - **System Engineering Process and Practices a key selection criterion and Award Fee element**
- **Full Rate Production Competition -- at least two JTR suppliers maintains price competition and production capacity on high volume LRUs**
 - **Follow-on production contract (fixed quantity options vs ID/IQ) is TBD**



Contract Approach Phase 1 (Pre-SDD)



- **Cost Plus Award Fee (CPAF) contract; 14 month period of performance**
 - **3 CLINs**
 - **Phase 1 tasks identified in SOO**
 - **NSP Data for Phase 1 deliverables**
 - **Award Fee**
 - Interim Award Fee period at 7 months
 - Final Award Fee period at 14 months
 - **Phase 1A deliverables due 7 months after contract award**
 - **Phase 1B deliverables due 14 months after contract award**
- **Award fee structure**
 - **2 periods, tied to completion of Phase 1A and Phase 1B objectives.**
 - **Qualitative assessment of each contractor's demonstrated performance**
 - sufficient identification/analysis of platform constraints
 - explicit system engineering/initial design objectives (radio and network)
 - thoroughness in identifying and using TOC as a design criterion
- **Other incentives: none**
 - **More than 1 award incentivizes strong SE focus, to remain competitive for much larger SDD effort**
 - **Winning SDD is strongest incentive government has in pre-SDD; recommend no additional incentive warranted**



Contract Parameters - Pre-SDD



- **Maximum use of commercial off-the-shelf technology; open architecture, standards-based**
- **Corporate/program specific subcontracting plans**
- **Special Terms and Conditions**
 - **Role of MITRE and ITSP**
 - **Role of Lincoln Laboratory**
 - **Analysis of on-board network attributes and architectural features**
 - **Analysis of WNW ability to address needs of airborne network**
 - **Support to Airborne Network Implementation Strategy**
 - **Unrestricted government rights for pre-SDD contract data deliverables**
 - **Report identifying platform constraints**
 - **Network architectures and platform network performance standards**
 - **System performance and functional interface requirements**
 - **TOC Model**
 - **Identify hardware exclusion terms planned for SDD**
 - **Identify SDD provision now - affects teaming strategy for pre-SDD**
 - **SDD prime system contractor will have hardware exclusion for JTR sets**
 - **Enables them to integrate radio design activity while qualifying at least 2 production sources without bias**



Contract Approach Phase 2 (SDD)



- **Contract type: CPAF/IF with FPIF LRIP options**
- **Period of performance: approx. 6-7 years, including LRIP**
- **Award fee themes:**
 - **Operational performance (KPP and threshold performance for each block of capability)**
 - **Schedule performance**
 - **Incentive for robust System Engineering process and practice (e.g., IPPD approach, integration of JTR set design activities with platform developers to ensure system-of-systems view)**
 - **Cost performance tracked vs. TOC baseline (common government/contractor model for TOC created at contract award)**
- **Other incentives:**
 - **Schedule incentive tied to continued improvement in delivery dates for EDMs and production units (must pass test & eval)**
 - **Continued TOC reduction incentive**
- **Contract Structure: number of CLINs: TBD**
 - **Four priced options (for two LRIP buys): 2 long lead options; 2 LRIP options**



Source Selection Plan

Phase 1 Pre-SDD



Source Selection Process

- Median Source Selection per AFARS (\$29 M)
 - Conduct in-depth review & evaluation of each proposal, & any subsequent revisions, against the approved factors, subfactors, and other solicitation requirements
- Basis for Contract Award - Evaluation Factors & Sub Factors
 - Factor 1: Mission Capability/Proposal Risks:
 - Subfactor 1: Access/knowledge of Platform Constraints
 - Subfactor 2: Ability to architect and specify/propose a standards based Airborne network
 - Subfactor 3: SDD Cluster 4 design and schedule acceleration
 - Subfactor 4: SDD Risk identification and mitigation plan
 - Factor 2: Past Performance
 - Factor 3: Cost/Price
- Relative Order of Importance
 - Factors 1 and 2 are of equal importance and each is more important than Factor 3.
 - Within Factor 1, subfactors are of equal importance.



Source Selection Considerations Phase 1 Pre-SDD



- **Source Selection Organization**
 - **Source Selection Authority (SSA): SAF/AQ**
 - **Source Selection Evaluation Team (SSET):**
 - **ESC/DIGR personnel, MITRE, Lincoln Lab, and ITSP support**
 - **ASC/AA personnel**
 - **Reps from MC, MA, CX, ASC/RA**
 - **NAVAIR rep including possible rep from E-2C SPO**
 - **JPO rep**
 - **Coordinating request for ASC/FB/GR/LU**
- **Request to SAF/AQ in coordination, seeking delegation of SSA to ESC/CC**



Market Research

- **Industry Day conducted 28 Oct 02**
 - 37 companies attended; 16 one-on-ones
- **Comments on draft SOO received from 6 firms; helped make SOO more communicative of governments objectives**
- **Request for Information - 14 responses received on 12 Nov 02; helped refine pre-SDD strategy and led to clarification of overall program strategy. Helped identify firms interested in being SDD prime.**
- **Sources Sought Synopsis closed 18 Dec: 9 responses received of which 4 are highly competitive**

Four Potential Sources



Potential Sources



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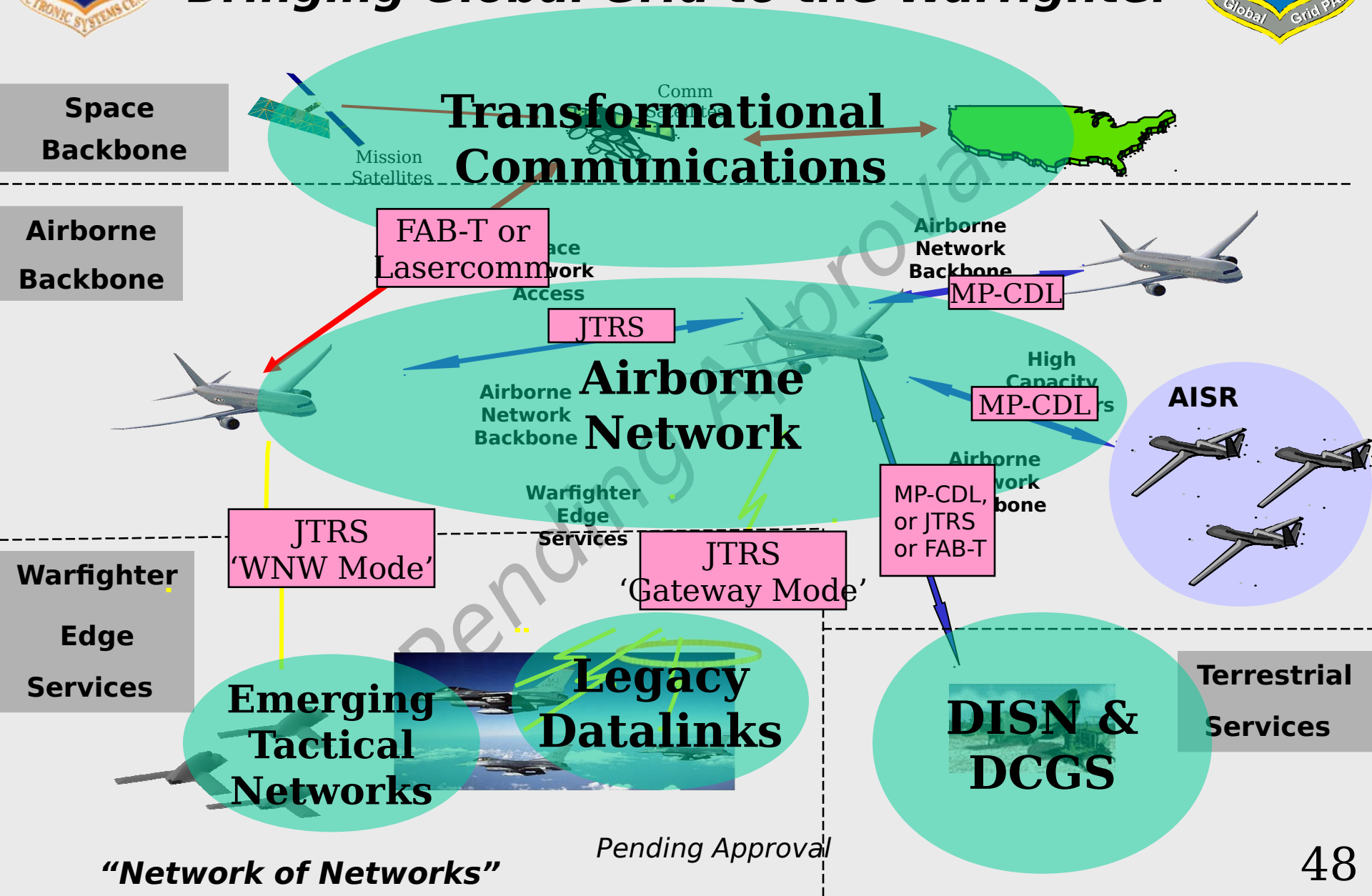
Special Topics

- Airborne Network Definition***
- Request for SSA and ASP Delegation***
- System Engineering***
- Views of Others***



Cluster 4

Bringing Global Grid to the Warfighter





Strategy Considerations

Preliminary Airborne Network Definition: should be initiated in parallel with evaluation of platform constraints and early Cluster 4 radio design

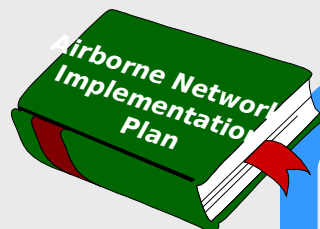
- Not on critical path of pre-SDD activities
- Lays groundwork for supporting network-centric operations
- Limited resources needed to define Airborne RF network, platform network architecture, and performance standards
 - Drive JTRS system performance and interface requirements

Shadows pre-SDD effort addressing platform constraints; network design not on Airborne JTRS critical path

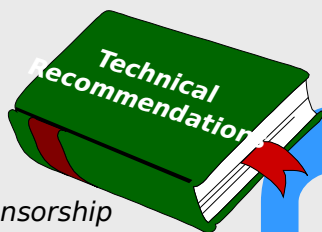


Airborne Network Management Strategy

Industry



**C2EI
DAC
ESC/CC**



AirNet Senior Steering Group

Chair: ESC/DI

Members: ESC/MC/MA/CX; ASC/RA/AA;
JTRS JPO,AF/XIC; AFC2ISRC/SC; AFRL/IF

Management forum that:

- Coordinates program & technology plan
- Approves cross-program policy, standards and architecture
- Advocates for needed resources/action

Via
Program Sponsorship

Via CRADA

Airborne Networking Special Interest Group

Chair: ESC/DIG

Initial Members (Programs): ESC/DIG (JTRSc4);
ESC/MC (FAB-T, Lasercom);
ASC/RAJ (MP-CDL); ESC/MAB (MC2A BMC4)

Specialized forum that:

- Recommends standards, architectures, roadmaps
- Assesses technical proposals
- Evaluates technology approaches



**Airborne
Network
Laboratory**

MIT/LL

Integration facility that:

- Evaluates tech solutions & standards
- Performs integration & experimentation
- Proposes & develops tech solutions

Airborne Network Management Strategy

- Coordinate Planned Investments
- Establish & Enforce Architecture Standards
- Identify and Resolve Technology Gaps



Special Topic - Delegation Request



- **Requesting Delegation to ESC/CC for key approvals, for pre-SDD only**
- **JTRS ADM, 24 Jun 02, requires all clusters to brief OIPT and get USD(AT&L) approval of Acquisition Strategy Report BEFORE release of any RFP**
 - **Seeking delegation of ASR approval, ASP Chair, SSA, and SAMP approval from SAF/AQ to ESC/CC**
 - **Seeking delegation of authority from USD(AT&L) to ESC/CC for acquisition strategy approval for JTRS Cluster 4 Pre-SDD**
 - **Comply with ADM by briefing full program strategy to OIPT and conducting senior level ASP prior to SDD RFP release.**
 - **24 Jan - two-hour brief scheduled with OASD/C3I and OUSD/AT&L reps to keep them informed**
- **If delegation not approved, will take ASP briefing to OIPT (through SAF/AQ) and send SAMP through SAF/AQ to USD(AT&L) for approval of acquisition strategy**



Special Topic - Incentives to Improve System Engineering



- Ensure **selection criteria** for SDD prime evaluate system engineering process maturity/viability and past performance in this area
 - System-of-systems awareness during system design
 - Dominance of system view in process for design tradeoffs
 - Level of system engineering (and IPPD) training/experience
- **Award Fee element** addressing System Engineering
 - System wide view being considered correctly for design trades?
 - Do CAIV options adequately address system impacts and system-of-system implications?
 - Is TOC being factored into system engineering analysis?
 - Identify “triggers” for initiating gov’t-led SE Process Review Team
 - Contractor’s process and practices being adhered to?
- **Joint System Engineering IPT** w/contractor and key stakeholders to ensure government insight
 - Key participants include NSA, operational testers, certifiers, JTRS JPO due to GFI software “seam”, platform SPOs and contractors (for platform integration matters)



Views of Others

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Recommendation

- **Approve overall strategy for JTRS Cluster 4:**
 - **Develops radio family for 65+ platforms**
 - **Seeks to accelerate schedule to meet highest priority fielding needs while managing risk**
 - **Emphasizes platform integration and total ownership costs**
 - **Develops ORD capability that enables airborne network-centric operations**
 - **Overlays platform investigation and schedule acceleration tasks in parallel with DAB preparation**
 - **Seeks evolutionary approach from industry while developing platform functional capabilities roadmap in partnership with ASC/AA and other platform SPO's**
- **Request for delegation of ASP Chair authority, SSA, ASR approval and SAMP approval to ESC/CC hand carried to SAF/AQI today.**



Back-up

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Advance Procurement



- **Have budgeted for long lead parts procurement in year prior to each LRIP and FRP buy.**
 - **History indicates comsec parts typically are longer lead items than most other parts.**
 - **Will be able to learn about likely long lead items as Cluster 1 program progresses (about 12-18 mos. ahead of Cluster 4)**
- **Exit criteria for SDD, to justify commitment of long lead funding, will be developed prior to Phase 2 ASP (summer 2003)**



Interoperability

- **JTRS is the DoD-directed Radio Interoperability Solution for all Services**
- **JTRS is being developed to provide complete Joint and coalition RF communications in the battlespace**
 - **Legacy waveforms, certified against legacy standards and ported across all clusters, provide interoperability with existing radios**
 - **Networking features in the radio and on the platform, supported by new Wideband Networking Waveforms (WNW), enables airborne network-centric operations**
 - **Gateways provide interoperability among new and legacy capabilities**
 - **Use of open architectures and commercial standards insures cost effective growth for future interoperability**
- **Interoperability is a KPP in the Joint JTRS ORD**



Current Cluster 4 RDT&E Cost Estimate



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Best Practices

- **Evolutionary acquisition**: using inputs from industry as product of Phase 1A (7 mos. After award) to define how best to block operational requirements to get earliest delivery of useful product for neediest users. Will work with joint user forum to seek ORD changes or clarifications as necessary - goal is no later than Phase 2 RFP
- **Avoidance of government-unique restrictions or “how tos”**
 - **Use of performance requirements document**; design is up to the contractor
 - **Use of open systems architecture and standards** to accommodate future changes in requirements as well as evolution of vendor base (both software and hardware suppliers/maintainers)
 - **Use of/or modification of COTS technology** as much as possible to reduce non-recurring cost and provide ease of sustainment. Also helps reduce recurring cost due to potentially greater production volumes and/or market pricing
- **Evaluation and award criteria for pre-SDD as well as SDD based on best value**



Integrated Contract Performance Management



- **Pre-SDD: will have contractor reviews to assess performance and will receive reports/data periodically during 14 month effort; all will be managed via a baselined integrated master schedule.**
 - **Phase 1A: will gain insight by having contractor propose own internal earned value process and reports to assess progress during course of 7 month effort**
 - **Phase 1B: will require earned value reporting for 14 month effort; contract. If contractor's process and data suffices, will make a deliverable; else, will use government DID. Expect insight to be evaluation tool used within program office.**



Integrated Digital Environment (IDE)



- **All data from the contractor for pre-SDD will be transmitted electronically and shared with stakeholders**
- **Data management system and environment for SDD under review.**
 - **Evaluating process and tools being implemented on Cluster -1**



Initial T&E and Certification Planning

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Test Scope and Objectives



- **Program Scope - Joint Service; DOT&E Oversight Probable**
- **Objectives -**
 - **Demonstrated Multi-channel operation 8 channels**
 - **Demonstrated KPP Waveform operation**
 - **Demonstrated JTRS Interoperability with legacy systems (KPP)**
 - **Demonstrated graduated capabilities to fit users needs**
 - **Demonstrated Network Extension/coverage across domain boundaries (Air to Ground)**
 - **Demonstrated system integration in a relevant environment (Integration into, and Flight Demonstration of JTRS-equipped aircraft)**
 - **Demonstrated incremental growth of cryptographic capabilities toward Multiple Single Levels of Security (MSLS)***
- * **Objective MSLS is anticipated to be demonstrated at Multi-service Operational Test and Evaluation (MOT&E)**



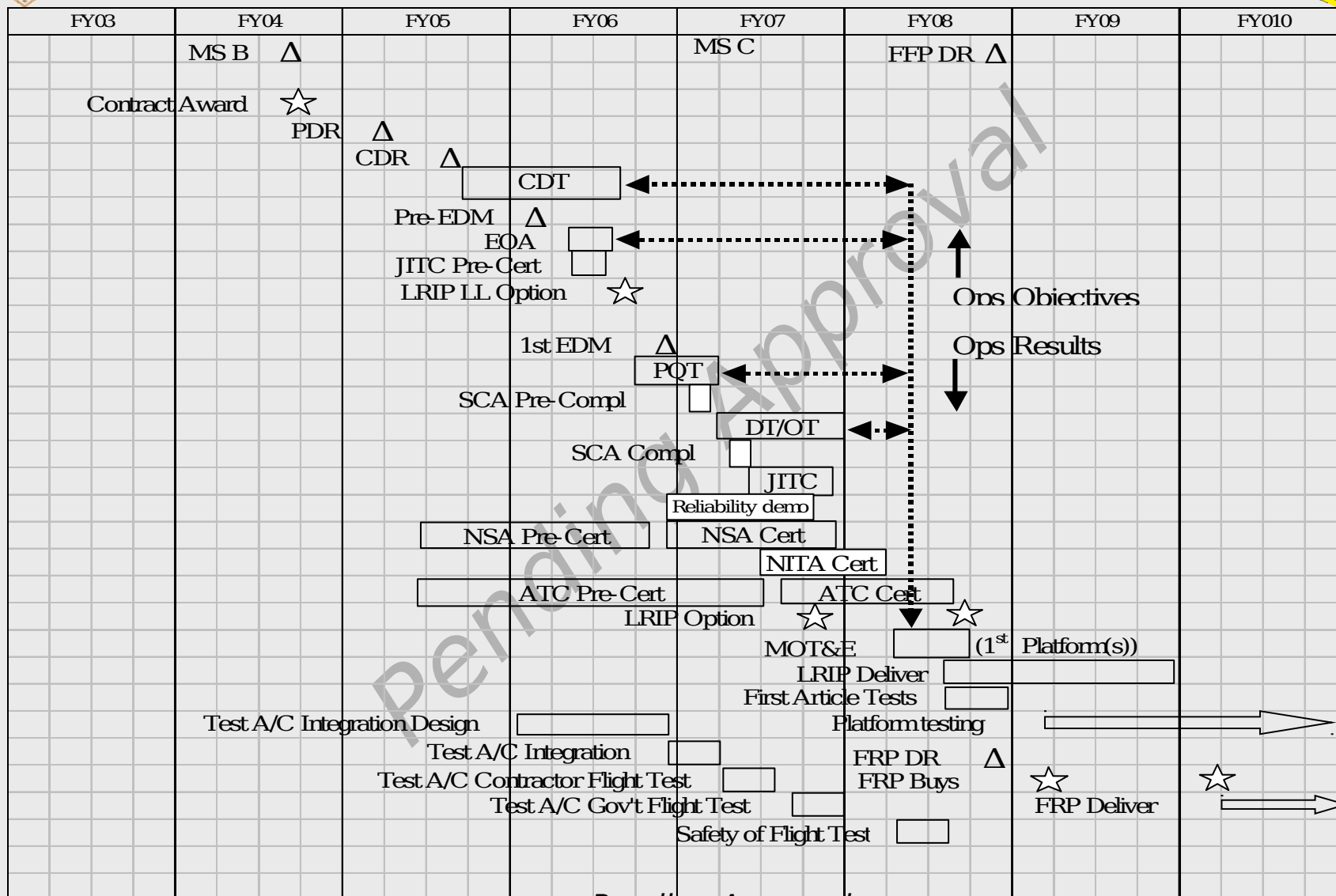
JTRS T&E Program Status



- **Pre-SDD Results will drive further T&E planning maturity**
- **Charter for Cluster IV WIPT drafted**
 - **membership in early coordination**
 - **Coordination with AFOTEC, ATEC and COMOPTEVFOR initiated**
 - **RTO Designation Process Started, CTF Members being identified**
- **Contact established with DOT&E (Probable Oversight - no Live Fire)**
- **Membership on Joint, Cluster 1, 2, and 3 WIPTs established**
- **Coordination with JITC, NSA, JTeL, and JSC (Certifications) initiated**
- **Draft of Annex to Joint TEMP initiated**
 - **Draft test approaches for CDT, GDT, PQT, and FAT in initial coordination**
 - **M&S support planning just begun**
 - **Tentative Schedule developed**



Nominal Test Schedule



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International Cooperation



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Requirements and System Engineering Planning

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Acquisition Security



- **Each different JTR set developed under a Cluster acquisition will need an NSA security certification prior to the Warfighters' use of that equipment**
- **Foreign releaseability**
 - **Processing of requests must include review by the JTRS JPO, Cluster PMOs, Joint Staff, NSA, JSC, DIA, and State Department.**
- **Security Requirements will be provided to PMO's through:**
 - **Telecommunications Security Requirement Document (TSRD)**
 - **Defines classification and markings of the end equipment and its components**
 - **Includes the expected content of the security deliverables**
 - **Unauthorized Events List (UEL)**
 - **NSA created generic list for all Clusters that addresses major security concerns**
 - **SCA Security Supplement**
 - **Unified INFOSEC Criteria (UIC) document**



Independent Review of Software Intensive Programs



- **IRSIP- process to evaluate software & its associated products for compliance with requirements and specs**
- **Pre-SDD includes defining architectures/concepts for family of radios**
 - **No software deliverables**
 - **Will identify risks associated with the architecture**
- **Planning for SDD will address the level of IRSIP to implement**
 - **Will be defined based on the risks identified in Phase 1 (pre-SDD) effort**



Human Systems Integration (HSI)



- **Will be addressed in pre-SDD (as part of planning for SDD)**
- **As the system requirements are defined more fully in Phase 1A, can better evaluate this area**

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Information Technology



- **Accomplished risk assessments**
 - **Assessment in accordance with IT categories**
 - **Initial risks areas identified (Clinger Cohen):**
 - **Security**
 - **Technology**
 - **Strategic**
 - **Project Resources**
- **Phase 1 will address majority of the risks**
- **Mitigation plans are being developed for the remainder**



Environment, Safety, & Occupational Health (ESOH) Considerations



- **Programmatic Environmental Safety & Health Evaluation (PESHE) Status**
 - **DoD 5000.2-R, paragraph C5.2.3.5.10 requires all programs to conduct Evaluation.**
 - **AF Form 813 "Request For Environmental Impact Analysis" and PESHE will be accomplished prior to Milestone "B"**
 - **No requirement to use Ozone Depleting Chemicals (ODC) will be levied on the contract**
 - **Use of Hazardous Materials (HAZMATs) will be minimized**



Technical/Engineering Management and Data



- **Change Management**
 - **Change Identification**
 - **Initially accomplished and chaired by prime contractor (pre FCA/PCA)**
 - **Configuration Control**
 - **Initially controlled and managed by contractor after FCA/PCA government assumes identity as configuration control agent**
- **Technical Data**
 - **Engineering Data**
 - **Technical Orders**
 - **Interactive Electronic Technical Manual(IETM); level and complexity TBD via SDD logistics trade studies**



Warranties/CLS

- **Warranties**
 - Warranty provision planned for production articles
 - Specific provisions of warranty TBD - will be defined during pre-SDD effort
- **Contractor Support**
 - TBD based on results of Source of Repair Approval Process (SORAP)
 - Decisions as to organic vs. CLS to be made by HQ AFMC as results of pre-SDD are analyzed for logistics implications



Support Strategy Considerations



- **System Support Management**
 - **Acquisition Phase: JTRS Program Office**
 - Interim contractor support contract provisions
 - **Production/Deployment Phase: WR-ALC**
 - Provisioning/contractor logistics support/develop core organic capability
- **Maintenance Concept**
 - **Organizational (Base) Level**
 - Remove and replace faulty SRU/LRU on equipment
 - **Depot Level**
 - Combination of organic core maintenance capability and OEM repair
 - **Software Support**
 - Establishment of software support resources/transitions from contractor effort
 - **Partnering**
 - Use of OEM software vendors to maintain/update software deliverables
- **Other Management Considerations**
 - To be defined as a result of SDD logistics trade studies/CAIV



Source of Support



- **Air Force maintenance concept and lead sustainment organization to be determined.**
- **SAF/AQI will incorporate tasking to AFMC in next PMD update.**
- **Results from Phase 1 architecture development will help define some logistics variables and allow further refinements in sustainment strategy.**
- **Contractor Logistics Support**
- **Lessons learned from legacy system programs will be taken into consideration (JTIDS, MIDS, SINCGARS, HQ, HQII, ARC-210...) when making defining support concept**



Supply Support

- **Supply Support Concept**
 - **Standard DOD provisioning/sparing (DO41)**
 - **Contractor - supported test activities**
 - **Prime mission equipment (both hardware and software) will be stocklisted and managed organically by cognizant ALC**

Pending Approval



Training



- **Training Requirements**
 - TBD based on SDD logistics trade studies
- **Training Strategy**
 - Maximize use of PME (hardware and software) with innovative embedded training approach
- **Training Planning Team to be formed during pre-SDD**
 - System Training Plan will leverage Cluster 1 efforts as applicable



Support Milestones



- **IOC and FOC dates to be determined**
- **Results of pre-SDD regarding recommended evolutionary acquisition approach (ORD requirements blocking) will drive definitions of IOC and FOC.**

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Fielding/Site Activation



- **Fielding strategy**
 - **Intend to use Programmed Depot Maintenance (PDM) process for JTRS installations**
 - **Consideration of contractor Tiger Teams**
 - **Time Compliance Technical orders (TCTO) to be used to document turnover**
- **Site/equipment acceptance procedure to be developed during SDD phase by Logistics WIPT**



Cluster 4 Program Challenge Summary



- A family of software-defined, multi-band/multi-mode airborne radios that will be integrated in **65+ platform types across all Services**
- **Evolutionary approach**: to provide initial JTRS capability earlier to **meet user need dates** and achieve full capability incrementally
- Designed to **minimize total ownership costs (TOC)** (A-kit plus B-kit and sustainment). Focused on ease of platform integration rather than just minimizing radio cost
- **Enable network-centric communications** capabilities via an airborne network as an extension of the Global Information Grid (GIG), while maintaining current capabilities.
 - Only through realization of network-centric capability will JTRS return on investment be maximized